Plasma concentration of 13,14-dihydro-15-keto PGE_2 after various ways of cervix ripening with PGE_2

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Prostaglandins (PG) are known to play a key role in the mechanism of human parturition (2). Moreover, PGE_2 is being widely used to induce labor at any times of gestation (3).

PGEM Assay Characteristics (1)

Intraassay	CV	8%
Interassay	CV	11%
Sensitivity		10 pg/ml
Cross reactivity		< 1%

Recently we were able to establish a radioimmunoassay for the determination of 11-deoxy-14, 14-dihydro-15-keto-13,11-beta-16-epsilon-cyclo-PGE_2, the deliberate chemical transformation product of 13,14-dihydro-15-keto PGE_2 (PGEM).

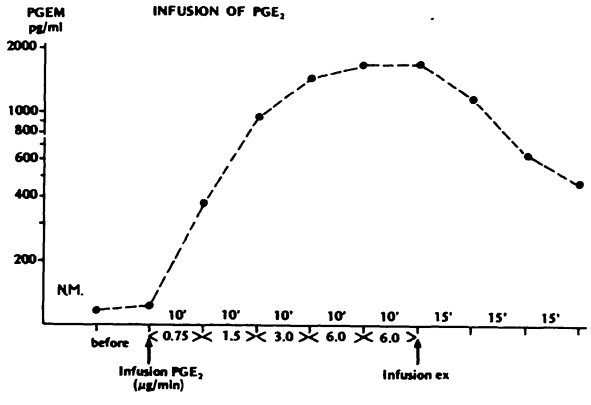

Fig. 1

To validate the assay we determined PGEM levels in the maternal peripheral plasma before and after intravenous infusion of PGE_2. As shown in Fig. 1 there is excellent correlation between the amount of PGE_2 infused intravenously and the levels of PGEM detected in the maternal peripheral plasma.

In order to get a deeper insight in the mechanism of induction of labor by local administration of PGE_2 we determined the maternal peripheral plasma concentration of PGEM before and after various procedures for local application of PGE_2 for the induction of labor at term. The following methods of local application of PGE_2 were compared:

0,5 mg PGE_2 in tylose gel as a single dose placed retroamnially by means of a balloon catheter

0,5 mg PGE_2 gel applied intracervically

1,5 mg PGE_2 in aqueous solution administered pericervically by means of a portio adapter

3 mg PGE_2 applied intravaginally in form of a single vaginal tab.

Also included was a control group where only vaginal examination was performed.

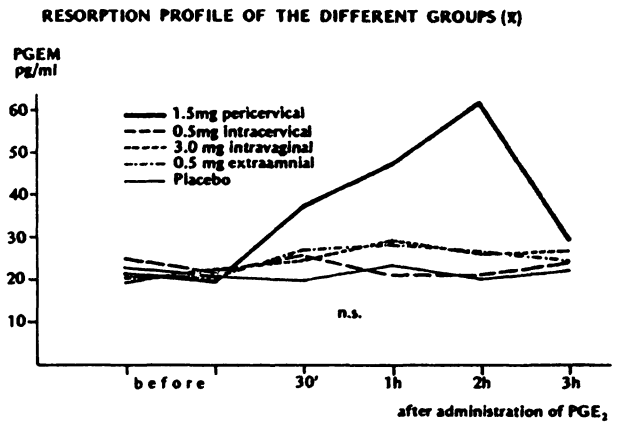

Fig. 2 ($\bar{x}$, n = 5)

As shown in Fig. 2 there were no significant changes of PGEM concentration in the maternal plasma after any of these methods of application of PGE_2. The non-significant tendency of PGEM levels to increase in the portio adapter group was due to levels of 1 individual female in whom PGEM concentration rose to 105 pg/ml and 198 pg/ml 1 and 2 hours after administration of the portio adapter. Clinically hyperstimulation was diagnosed and the adapter removed. Levels then dropped to 35 pg/ml within an hour.

Conclusions:

1. Local administration of PGE_2 in doses currently used to induce labor at term in general does not lead to increased PGEM levels in the maternal peripheral plasma.
2. Exceptionally a marked rise in PGEM concentration in the peripheral plasma can be shown after pericervical application of 1,5mg PGE_2 or after intravaginal administration of 3 mg PGE_2.
3. Concentration of PGEM in the maternal peripheral plasma after local administration of PGE_2 does not correlate with the outcome of induction.

Literature:

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